



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/620,603 | 07/17/2003 | Yoshifumi Fujikawa | 501.4277900 | 9285 |
| 24956 | 7590 | 01/12/2007 | EXAMINER | |
| MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C. | | | AKHAVANNIK, HADI | |
| 1800 DIAGONAL ROAD | | | ART UNIT | PAPER NUMBER |
| SUITE 370 | | | 2624 | |
| ALEXANDRIA, VA 22314 | | | | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 01/12/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | |
|------------------------------|-----------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/620,603 | FUJIKAWA ET AL. |
| | Examiner | Art Unit |
| | Hadi Akhavannik | 2624 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) 7-9, 14, 15, 17, 18, 20 and 21 is/are allowed.
- 6) Claim(s) 1-3, 10-13, 16 and 19 is/are rejected.
- 7) Claim(s) 4-6 is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 17 July 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/12/03.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) Notice of Informal Patent Application
- 6) Other: ____.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim(s) 10-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 10-12 define a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium

and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a computer program can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 10, 13, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiura et al (Japanese Patent No. 2000-175019, referred to as "Yoshiura" herein) in view of Alattar et al (7020304, referred to as "Alattar" herein), in view of Rao et al (6687412, referred to as "Rao" herein).

Regarding claim 1, Yoshiura discloses a digital-watermark-embedding apparatus for embedding a digital watermark into a content, said digital-watermark-embedding apparatus comprising: a picture input unit for inputting said content; a vision-sensitivity computation unit and a digital-watermark embedment unit, which are connected to said picture input unit (see paragraphs 24-28 as it discloses a watermark embedding unit

which finds the vision sensitivity, read as brightness change, and embeds the information);

Yoshiura discloses calculating the brightness change in paragraph 26 and embedding the watermark based on those values.

Yoshiura does not explicitly disclose changing the variance of the luminance values.

Alattar discloses calculating the variance of the luminance and also motion vectors for finding watermarking in the DCT values (see column 20 lines 9-19)

It would have been obvious at the time of the invention to one of ordinary skill in the art to include in Yoshiura and luminance variance means as taught by Aattar. The reason for the combination is because it allows the system to find inconspicuous areas to embed a watermark into an image. Also please note that both inventions are from the same field of endeavor of watermarking and that Yoshiura already discloses calculating the brightness change.

Neither Yoshiura nor Alattar explicitly disclose compressing the image.

Rao discloses compressing the image by creating a quantization parameter from the DCT array by taking into account the human vision sensitivity (see column 4 line 63 to column 5 line 37. Please note that this is on the basis of the noise vision sensitivity because by compressing the image the system is also compressing the watermarked information and the watermarked information is based on the noise vision sensitivity).

It would have been obvious to include in the combination of Yoshiura and Alattar a compressing means as taught by Rao. The reason for the combination is because it

makes for a more robust system that can same memory space by compressing the image.

None of Yoshiura, Alattar, nor Rao disclose creating a noise vision sensitivity index.

However, the examiner takes official notice that it would have been exceedingly obvious at the time of the invention to one of ordinary skill in the art to create an index number from the noise vision sensitivity. The reason is because creating index numbers to represent values is a common technique used to send data between different parts of a system as it allows for efficient information exchange.

Regarding claim 2, please see the rejection of claim 1 and take special note of paragraphs 23-25 of Yoshiura as it discloses finding a motion vector for embedding a watermark.

Regarding claim 3, please see the rejection of claims 1 and 2 and also the examiner takes official notice that it would have been exceedingly obvious at the time of the invention to one of ordinary skill in the art to have a buffer unit. The reason is because any system that wishes to transfer data must have some kind of memory and all kinds of memory contain a buffer unit. Therefore, in order to send and receive data the system must have a buffer unit as well.

Regarding claim 10, please see the rejection of claim 1 as it discloses all aspects of claim 10.

Regarding claim 13, please see the rejection of claims 1 and 2 as it discloses all aspects of claim 13.

Regarding claim 16, please see the rejection of claim 2 as it discloses all aspects of claim 16.

Regarding claim 19, please see the rejection of claim 2 as it discloses all aspects of claim 20.

Allowable Subject Matter

Claims 4-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7-9, 14-15, 17-18, and 20-21 are allowed over prior art.

Conclusion

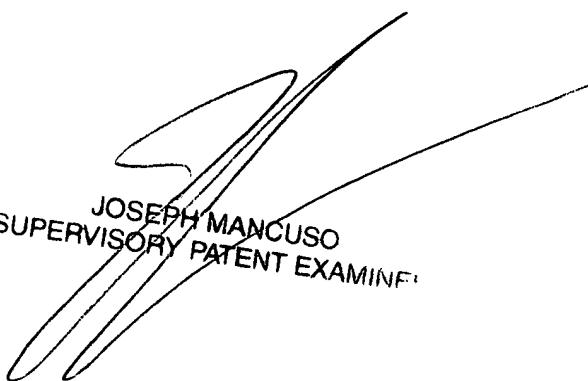
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Werner et al. (7130443, discloses detecting watermarks based on the change in variance); Lewis et al. (6725372, discloses compressing watermarked images).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Akhavannik whose telephone number is 571-272-8622. The examiner can normally be reached on 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HA
1/5/07



JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINEE